

## Braille Input Device

### **DESCRIPTION**

#### **[Para 1]** CROSS-REFERENCE TO RELATED APPLICATION

**[Para 2]** This application claims priority from U.S. provisional application Serial No. 60/504,289 filed September 19, 2003.

#### **[Para 3]** BACKGROUND OF THE INVENTION

##### **[Para 4]** Field of the Invention

**[Para 5]** This invention relates, generally, to devices that help low vision and unsighted persons to read. More particularly, it relates to a Braille input device having a keyboard that includes dot keys, function keys and a cursor control key.

##### **[Para 6]** Description of the Prior Art

**[Para 7]** Blind and low vision persons frequently use Braille as a means of writing and reading text. Braille characters are generated by selective activation of eight dots arranged in two parallel columns of four dots each.

**[Para 8]** Various digital devices are available for entering Braille text into a computer memory and for displaying the stored text. A typical Braille keyboard includes two sets of four dot keys per set and a space key. In some keyboards, a cursor router key is provided for navigating through stored text.

**[Para 9]** A Braille keyboard may be a stand alone peripheral device for connecting to a microcomputer, or it may be formed as an integral part of a computer.

**[Para 10]** A notetaker is a portable computer used by blind and low vision students. The notetaker includes a keyboard for inputting text data and a memory for storing data. The notetaker also may include a programmed computer that converts stored text to an audio output so that the user can hear the stored text. It may also include a Braille display to allow a user to read the text. The Braille display has a row of cells, each of which displays one character of stored text by selectively raising pins to form the dots for the character displayed.

**[Para 11]** Function keys are provided for selecting different functions In a standard QWERTY computer keyboard. Similar function keys have not been available for Braille keyboards.

**[Para 12]** Accordingly, there is a need for a Braille input device including a keyboard having function keys.

**[Para 13]** However, in view of the prior art considered as a whole at the time the present invention was made, it was not obvious to those of ordinary skill in the art that an improved Braille keyboard was needed, nor was it obvious how the need could be fulfilled if it had been perceived.

#### **[Para 14] SUMMARY OF THE INVENTION**

**[Para 15]** The long-standing but heretofore unfulfilled need for an improved Braille input device includes a notetaker having a plurality of dot keys for inputting dot information that forms Braille characters. At least one function key is positioned in close proximity to a preselected dot key of the plurality of dot keys. The at least one function key is positioned adjacent and above the preselected dot key to facilitate location of the at least one function key.

**[Para 16]** In a preferred embodiment, the plurality of dot keys includes eight keys. The eight keys are grouped into a left-hand group of four keys and a right-hand group of four keys. Each of the eight function keys is positioned adjacent and above an associated dot key.

**[Para 17]** In a second embodiment, at least one cursor router key is disposed in proximity to the plurality of dot keys. The at least one cursor router key may be disposed at any suitable location on the notetaker but is preferably positioned between the left-hand group of four keys and the right-hand group of four keys so that the user can easily locate it.

**[Para 18]** The primary advantage of this invention is that it equips a Braille input device such as a notetaker with at least one function key.

**[Para 19]** Another advantage is that it positions the at least one function key in a location where it is easily found by an unsighted or low vision user.

**[Para 20]** Another advantage is that equips a Braille input device with at least one cursor control key and positions said at least one cursor control key in a location that is easy to find by an unsighted or low vision user.

**[Para 21]** The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts that will be exemplified in the description set forth hereinafter and the scope of the invention will be indicated in the claims.

#### **[Para 22] BRIEF DESCRIPTION OF THE DRAWINGS**

**[Para 23]** For a fuller understanding of the nature and objects of the invention, reference should be made to the following detailed description, taken in connection with the accompanying drawings, in which:

**[Para 24]** Fig. 1 is a top plan view of a Braille input device equipped with a plurality of function keys and a cursor control key; and

**[Para 25]** Fig. 2 is a top plan view of the Braille input device of Fig. 1 further equipped with a Braille display.

## **[Para 26]** DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

**[Para 27]** Referring now to Fig. 1, it will there be seen that an illustrative embodiment of the invention is denoted as a whole by the reference numeral 10. Braille input device 10 includes a conventional notetaker 11. However, this invention has utility with all Braille input devices, not just notetaker 11.

**[Para 28]** Dot keys 12a-12d form a left hand group and dot keys 12e-12h form a right hand group for activation with the corresponding fingers of the left and right hands, respectively. Space key 13 is centered below the two groups of keys 12a-12h and a cursor router key 14 is positioned between the two groups of keys. More than one cursor router key 14 may be provided.

**[Para 29]** In this illustrative embodiment, function key 15a is positioned adjacent and above dot key 12a, function key 15b is positioned adjacent and above dot key 12b, function key 15c is positioned adjacent and above dot key 12c, function key 15d is positioned adjacent and above dot key 12d, function key 15e is positioned adjacent and above dot key 12e, function key 15f is positioned adjacent and above dot key 12f, function key 15g is positioned adjacent and above dot key 12g, and function key 15h is positioned adjacent and above dot key 12h. Thus, a separate function key 15a-15h is respectively positioned adjacent and above each dot key 12a-12h.

**[Para 30]** This invention requires that at least one function key be provided in association with at least one dot key. This invention does not require that each dot key have a corresponding function key, but such structure is preferred.

**[Para 31]** Each function key may have a dedicated function. In the alternative, each function key may be programmable.

**[Para 32]** The positioning of each function key adjacent and above a different dot key enables a user to quickly locate and depress a desired function key without having to remove the hands from the Braille keyboard. More particularly, a user operates dot keys 12a-d and function keys 15a-d with the left hand and dot keys 12e-h and function keys 15e-h with the right hand.

**[Para 33]** A second embodiment of the invention is depicted in Fig. 2 and is denoted as a whole by the reference numeral 10a. Notetaker 11a includes a conventional Braille keyboard having eight dot keys 21a-21h , a space bar key 22, a cursor router key 23, Braille display 24, and function keys 26a-h.

**[Para 34]** Braille display 24 includes a number of Braille cells 25 arranged in a row, with each Braille cell 25 forming a different character in a line of text.

**[Para 35]** Function key 26a is preferably located adjacent and above dot key 21a, function key 26b is preferably located adjacent and above dot key 21b, function key 26c is preferably located adjacent and above dot key 21c, function key 26d is preferably located adjacent and above dot key 21d, function key 26e is preferably located adjacent and above dot key 21e, function key 26f is preferably located adjacent and above dot key 21f, function key 26g is preferably located adjacent and above dot key 21g, and function key 26h is preferably located adjacent and above dot key 21h.

**[Para 36]** During use, Braille display 24 is closest to a user's body. A user operates dot keys 21a-d and function keys 26a-d with the left hand and dot keys 21e-h and function keys 26e-h with the right hand.

**[Para 37]** As used herein, the term "above" in identifying the preferred location for the function keys means that the function keys are spaced further from the user than the dot keys, or nearer the top of Figs. 1 and 2.

**[Para 38]** It will thus be seen that the objects set forth above, and those made apparent from the foregoing description, are efficiently attained. Since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matters contained in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

**[Para 39]** It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention that, as a matter of language, might be said to fall therebetween.

**[Para 40]** Now that the invention has been described,